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HCMM Energy Budget Data As A Model Input For
Assessing Regions of High Potential Groundwater Pollution

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A. Problems

Notification was not received regarding the Oct. 17, WB-57F overflight with the RS-18 scanner until several days after the overflight. As a result, no ground truth data were acquired.

Clouds obscured the Brookings County test site on Oct. 20, the date of the U-2 HCMR overflight.

A scheduled daytime WB-57F overflight on Nov. 4 was cancelled due to mechanical difficulties with the aircraft. Weather conditions prevented rescheduling of the flight.

Computer Compatible Tapes (CCT's) of RS-18 data from the Oct. 17 overflight have not been received.

B. Accomplishments

A meeting was held at the Remote Sensing Institute, SDSU, on Sept. 30 with water resource specialists from various South Dakota state and federal agencies and RSI personnel in attendance. The purpose of the meeting was to provide the attendees with details concerning experimental objectives and to establish coordination of ground-water surveys for transfer of available well-sounding data to RSI. Information provided by personnel attending the meeting was used in selecting test sites. Attending the meeting were:

Ed LeRoux - Assistant Branch Chief, USGS

Neil Koch - Geologist, USGS

Jim Hyland - Chief State Geologist, SCS

Herb Evans - SCS

Jerry Siegel - Manager, East Dakota Conservancy Subdistrict

Leo Christianson - Representative of State Geologist, University of South
Dakota

Jerry Tunheim - Physics Dept., South Dakota State University

Vic Myers - RSI

Don Moore - RSI

Jim Heilman - RSI

Six fields (2 alfalfa, 2 pasture, 2 bare soil) were selected for intensive measurements of soil-moisture and soil-temperature profiles, water table depth, and vegetation biomass. Copper-constantan thermocouples were installed at 1, 2.5, 5, 10, 20, and 50 cm with two replications per field. Soil moisture was estimated gravimetrically. Water table depths were measured in test wells by personnel from the East Dakota Conservancy Subdistrict. Percent ground covered by vegetation for the six fields and an additional 26 fields with various cover types was estimated using vertical, color infrared photographs from a height of approximately 1.5 m and a dot grid.

Ground truth measurements were collected in support of the Oct. 20 HCMR, and the Nov. 3 predawn RS-18 overflight. In addition, on Oct. 20 temperatures of selected fields were measured with a PRT-5 at an altitude of approximately 76 m.

Screening imagery and a CCT for the Oct. 20 HCMR flight, and screening film for the two RS-18 flights have been received. During the next reporting period, procedures for manipulating and reducing HCMR data will be developed. If RS-18 data are received, field measurements and the aircraft data will be used to evaluate effects of vegetation, soil moisture and water-table depths on soil-temperature profiles.

C. Significant Results

Since the aircraft data have not yet been analyzed, there are no significant results to report at this time.

D. Publication

None at this time.

E. Recommendations

None at this time.

F. Funds Expended

\$6190.00

G. Data Utility

Aircraft data have not been analyzed.